

(FILE 'HOME' ENTERED AT 16:31:31 ON 26 JAN 2002)

FILE 'CAPLUS' ENTERED AT 16:31:46 ON 26 JAN 2002

L1 357 S SUBMERG? COMBUST?  
L2 1 S CULLET (3N) ORGANIC

FILE 'STNGUIDE' ENTERED AT 16:33:58 ON 26 JAN 2002

FILE 'CAPLUS' ENTERED AT 16:34:07 ON 26 JAN 2002

L3 1 S (CULLET (5A) ORGANIC)  
L4 1 S (CULLET (S) ORGANIC)  
L5 5 S (CULLET AND ORGANIC)  
L6 590982 S (CULLET OR GLASS)  
L7 590982 S (CULLET OR GLASS)  
L8 587670 S (WASTE OR ORGANIC)

L10 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 1998:174931 CAPLUS

DN 128:234216

TI Manufacture of supplementary cementitious materials from industrial  
**wastes**

AU Mishulovich, Alex; Bhatti, Javed I.; Abbasi, Hamid A.; Rue, David; Olabin,  
Vladimir M.; Pioro, Leonard S.

CS Construction Technology Laboratories, Skokie, IL, USA

SO Proc. Int. Conf. Incineration Therm. Treat. Technol. (1996), 297-301

Publisher: University of California, Irvine, Irvine, Calif.

CODEN: 65TTAP

DT Conference

LA English

CC 58-1 (Cement, Concrete, and Related Building Materials)

Section cross-reference(s): 60

AB Supplementary cementitious materials (SCM) were manufd. by melting and  
vitrification of specially designed blends of **wastes** with the  
addn. of inexpensive natural materials (limestone, sand, shale, etc.).  
This approach opens an outlet for the rational use of **wastes** and  
reduces carbon dioxide emission usually assocd. with prodn. of  
conventional portland cement. The paper summarizes the results of the  
bench top phase of formulation and testing of SCMs prepd. from Illinois  
coal ash with the addn. of inexpensive natural or **waste**  
materials, such as limestone or cement kiln dust. Selection of the  
prospective compns. was based on the anal. of phase equil. in the system  
CaO-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>. Compns. were chosen that melt at temps. <1250.degree..  
These compns. were realized by mixing the ingredients in the calcd.  
proportions. Performance of the produced materials was tested in blended  
cements and concretes. Blended cements incorporating SCMs are not only  
competitive in terms of strength but have an addnl. advantage of  
preventing or greatly reducing deleterious chem. reactions between the  
cement paste and concrete aggregates. This improves the durability of  
concrete. Unlike conventional portland cements, the supplementary  
cementing materials should be produced in the form of **glasses** to  
provide the necessary chem. reactivity of the product. Besides,  
vitrification prevents leaching of the trace elements present in the  
source materials. Submerged gas combustion was suggested and tested as  
the process of choice for commercialization of this technol. Pilot  
testing of the **submerged combustion** melter begins this  
year in a 250-kg/h test facility. Further studies are under way to  
finalize the prodn. process parameters and to investigate the products  
performance.

ST supplementary cementitious material industrial **waste**

IT **Wastes**

(industrial; manuf. of supplementary cementitious materials from  
industrial **wastes**)

IT Cement (construction material)

Recycling

(manuf. of supplementary cementitious materials from industrial wastes)

- L10 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS  
AN 1994:282461 CAPLUS  
DN 120:282461  
TI Development of spent solvent treatment process by a **submerged combustion** technique  
AU Uchiyama, Gunzo; Maeda, Mitsuru; Fujine, Sachio; Amakawa, Masayuki; Uchida, Katsuhide; Chida, Mitsuhisa  
CS Dep. Fuel Cycle Saf. Res., Japan At. Energy Res. Inst., Tokai, 319-11, Japan  
SO J. Nucl. Sci. Technol. (1994), 31(3), 228-39  
CODEN: JNSTAX; ISSN: 0022-3131  
DT Journal  
LA English  
CC 71-5 (Nuclear Technology)  
AB An exptl. study using a bench-scale equipment of 1 kg-stimulated spent solvents per h was conducted in order to evaluate the applicability of a **submerged combustion** technique for the treatment of spent solvents contaminated with TRU elements. This report describes the exptl. results on the combustion characteristics of the simulated spent solvents of tri-Bu phosphate and/or n-dodecane, and on the distribution behaviors of combustion products such as phosphoric acid, Ru, I, Zr and lanthanides as TRU simulants in the **submerged combustion** process. Also the exptl. results of TRU sepn. from phosphoric acid soln. by copptn. using bismuth phosphate are reported. The **submerged combustion** technique was applicable to the treatment of spent solvents including the distn. residues of the solvent. Based on the exptl. data, a new treatment process of spent solvent was proposed which consisted of **submerged combustion**, co-pptn. using bismuth phosphate, ceramic membrane filtration, cementation of TRU lean phosphate, and vitrification of TRU rich **waste**.  
ST **submerged combustion** spent fuel reprocessing solvent; tributyl phosphate **submerged combustion**; dodecane **submerged combustion**; lanthanide transuranium simulant **submerged combustion**; copptn phosphate transuranium sepn radioactive **waste**; cementation phosphate sepn radioactive **waste**; filtration spent solvent fuel reprocessing; vitrification transuranium sepn fuel reprocessing **waste**  
IT Gamma ray  
(-emitters, recovery of, in treatment process for spent fuel reprocessing solvents)  
IT Rare earth metals, reactions  
RL: RCT (Reactant)  
(combustion of transuranic simulant, in spent fuel reprocessing solvent treatment process)  
IT Hydrocarbons, preparation  
RL: FORM (Formation, nonpreparative)  
(formation of, in simulated spent fuel reprocessing solvent treatment by **submerged combustion**)  
IT Evaporation  
Neutralization  
(in nuclear fuel reprocessing spent solvent treatment process)  
IT Cementation  
(of transuranium-element depleted phosphate **wastes**, in treatment process for spent fuel reprocessing solvents)  
IT Transuranium elements  
RL: PROC (Process)  
(recovery of, in treatment process for spent fuel reprocessing solvents)  
IT Radioactive **wastes**

(spent solvent treatment process for fuel reprocessing,  
**submerged combustion** technique in)

IT Nuclear reactor fuel reprocessing  
(spent solvent treatment process, **submerged  
combustion** technique in)

IT Filters and Filtering materials  
(ceramic, in nuclear fuel reprocessing spent solvent treatment process)

IT Precipitation  
(co-, in nuclear fuel reprocessing spent solvent treatment process)

IT **Glass, oxide**  
RL: PROC (Process)  
(radioactive-**waste**, transuranium-element enriched, in  
treatment process for spent fuel reprocessing solvents)

IT Combustion  
(submerged, in nuclear fuel reprocessing spent solvent treatment  
process)

IT 12587-47-2P, Beta particle  
RL: PREP (Preparation)  
(-emitters, recovery of, in **submerged combustion**  
treatment process for spent fuel reprocessing solvents)

IT 34513-98-9  
RL: PROC (Process)  
(combustion of simulated spent fuel reprocessing solvent contg.,  
radioactive **waste** disposal in relation to)

IT 74-88-4, Methyl iodide, reactions 75-03-6, Ethyl iodide 107-08-4,  
Propyl iodide  
RL: RCT (Reactant)  
(combustion of simulated spent fuel reprocessing solvent contg.,  
radioactive **waste** disposal in relation to)

IT 10108-73-3, Cerium trinitrate 10138-01-9, Europium trinitrate  
10361-83-8, Samarium trinitrate 13826-66-9, Zirconyl dinitrate  
RL: PROC (Process)  
(combustion of transuranic simulant, in spent fuel reprocessing solvent  
treatment process)

IT 112-40-3, Dodecane 126-73-8, Tributyl phosphate, reactions  
RL: RCT (Reactant)  
(combustion of, in simulated spent fuel reprocessing solvent treatment  
process, radioactive **waste** issues in relation to)

IT 7782-44-7  
RL: PROC (Process)  
(combustion, submerged, in nuclear fuel reprocessing spent solvent  
treatment process)

IT 13847-18-2, Barium phosphate  
RL: PROC (Process)  
(copptn. with, of transuranics in simulated spent fuel reprocessing  
solvent treatment process)

IT 124-38-9P, Carbon dioxide, preparation 630-08-0P, Carbon monoxide,  
preparation 7782-44-7P, Oxygen, preparation  
RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in simulated spent fuel reprocessing solvent treatment  
by **submerged combustion**)

IT 7553-56-2P, Iodine, preparation 15454-31-6P, Iodate (IO3-)  
20461-54-5P, Iodide, preparation  
RL: PREP (Preparation)  
(recovery of, from combustion of simulated spent fuel reprocessing  
solvent contg. alkyl iodides)

IT 7440-18-8P, Ruthenium, preparation  
RL: PREP (Preparation)  
(recovery of, from combustion of simulated spent fuel reprocessing  
solvent contg. ruthenium nitrosyl nitrate)

IT 7440-18-8DP, Ruthenium, phosphate complexes  
RL: PREP (Preparation)  
(recovery of, from combustion of simulated spent fuel reprocessing

solvent contg. ruthenium nitrosyl nitrate, radioactive **waste**  
disposal in relation to)

IT 13454-71-2P, Cerium monophosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. cerium  
nitrate, fuel reprocessing **waste** issues in relation to)

IT 13537-10-5P, Europium(III) phosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. europium  
nitrate, fuel reprocessing **waste** issues in relation to)

IT 13465-57-1P, Samarium(III) phosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. samarium  
nitrate, fuel reprocessing **waste** issues in relation to)

IT 13565-97-4P, Zirconium pyrophosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. zirconyl  
nitrate, fuel reprocessing **waste** issues in relation to)

IT 7440-07-5P, Plutonium, preparation  
RL: PREP (Preparation)  
(recovery of, from phosphoric acid solns. by copptn. with barium  
phosphate, spent fuel reprocessing solvent **waste** in relation  
to)

IT 7664-38-2P, Phosphoric acid, preparation  
RL: PREP (Preparation)  
(recovery of, from tri-Bu phosphate combustion in simulated spent fuel  
reprocessing solvent treatment process)

L10 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 1964:467389 CAPLUS

DN 61:67389

OREF 61:11643c-d

TI Recovery of sulfuric acid and metal salt from spent sulfuric acid. IX.  
Treatment of spent sulfuric acid liquor by middle scale apparatus. 2.  
Concentration of spent sulfuric acid liquor by the **submerged**  
**combustion** apparatus

AU Kubo, Teruichiro; Taniguchi, Masao; Senda, Shokichi; Sato, Katsuaki

CS Tokyo Inst. Technol

SO Kogyo Kagaku Zasshi (1964), 67, 869

DT Journal

LA Unavailable

CC 17 (Industrial Inorganic Chemicals)

AB By use of a **submerged combustion** vessel having a  
capacity of 400 l. the concn. of dil. H<sub>2</sub>SO<sub>4</sub> and **waste** H<sub>2</sub>SO<sub>4</sub> was  
examd. The inner face of the steel vessel was lined with **glass**.  
The burner for the combustion of natural gas was made of graphite in dil.  
acid and of steel in concd. acid. Heat efficiency was 78.5-85.8% at  
concns. of 10.9-42.5% and 61.2-78.8% at concns. of 42.5-85.1%. In the  
case of xwaste acid concn. almost the same results were obtained.

(FILE 'HOME' ENTERED AT 16:31:31 ON 26 JAN 2002)

FILE 'CAPLUS' ENTERED AT 16:31:46 ON 26 JAN 2002

L1 357 SEA PLU=ON SUBMERG? COMBUST?

L\*\*\* DEL 0 S CULLET NEAR3 ORGANIC

L2 1 SEA PLU=ON CULLET (3A) ORGANIC

FILE 'STNGUIDE' ENTERED AT 16:33:58 ON 26 JAN 2002

SET LINE 250

SET DETAIL OFF

FILE 'CAPLUS' ENTERED AT 16:34:07 ON 26 JAN 2002

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                SET LINE LOGIN
                SET DETAIL LOGIN
                SET NOTICE 1000 SEARCH
L3              1 SEA PLU=ON   (CULLET (5A) ORGANIC)
L4              1 SEA PLU=ON   (CULLET (S) ORGANIC)
L5              5 SEA PLU=ON   (CULLET AND ORGANIC)
L6              590982 SEA PLU=ON (CULLET OR GLASS)
L7              590982 SEA PLU=ON (CULLET OR GLASS)
L8              587670 SEA PLU=ON (WASTE OR ORGANIC)
                SET NOTICE LOGIN SEARCH
L9              20742 SEA PLU=ON  L6 AND L8
L10             3 SEA PLU=ON  L1 AND L9
                D 1-3 ALL

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FILE HOME

FILE CAPLUS

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FILE COVERS 1907 - 26 Jan 2002 VOL 136 ISS 5  
 FILE LAST UPDATED: 25 Jan 2002 (20020125/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REGISTRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

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The CA Lexicon is now available in the Controlled Term (/CT) field. Enter HELP LEXICON for full details.

Attention, the CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of

FILE STNGUIDE  
 FILE CONTAINS CURRENT INFORMATION.  
 LAST RELOADED: Jan 25, 2002 (20020125/UP).

FILE & COST CENTER	QUANTITY @	RATE	ESTIMATED COST U.S. DOLLARS
HOME FILE	COST=		
CONNECT HOURS	0.01 @	15.00	0.15
INTERNET HOURS	0.01 @	6.00	0.06
CAPLUS FILE	COST=		
CONNECT HOURS	0.04 @	32.00	1.28

INTERNET HOURS	0.04 @	6.00	0.24
SEARCH TERMS IN FIELD BI	7 @	1.55	10.85
CAPLUS FEE (5%)	12.13 @	0.05	0.61
STNGUIDE FILE COST=			
SFE CONNECT HOURS	0.01 @	0.00	0.00
INTERNET HOURS	0.01 @	6.00	0.06
CAPLUS FILE COST=			
CONNECT HOURS	0.05 @	32.00	1.60
INTERNET HOURS	0.05 @	6.00	0.30
DISPLAYS IN FORMAT ABS	3 @	1.27	3.81
DISPLAYS IN FORMAT BIB	3 @	0.91	2.73
DISPLAYS IN FORMAT IND	3 @	0.27	0.81
SEARCH TERMS IN FIELD BI	12 @	1.55	18.60
CAPLUS FEE (5%)	27.55 @	0.05	1.38

SUMMARY BY FILE	AND	COST CENTER	HOURS	ESTIMATED COST U.S. DOLLARS
HOME FILE		(NONE)	0.01	0.21
CAPLUS FILE		(NONE)	0.09	42.21
STNGUIDE FILE		(NONE)	0.01	0.06

COSTS INCLUDE TELECOMMUNICATION FEES	0.11	0.66
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SUMMARY BY	COST CENTER	HOURS	ESTIMATED COST U.S. DOLLARS
	(NONE)	0.11	42.48
YOUR TOTAL SESSION COSTS ARE		0.11	42.48

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-1.86	-1.86

IN FILE 'CAPLUS' AT 16:37:16 ON 26 JAN 2002

(FILE 'HOME' ENTERED AT 16:31:31 ON 26 JAN 2002)

FILE 'CAPLUS' ENTERED AT 16:31:46 ON 26 JAN 2002

L1 357 S SUBMERG? COMBUST?  
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L3 1 S (CULLET (5A) ORGANIC)  
L4 1 S (CULLET (S) ORGANIC)  
L5 5 S (CULLET AND ORGANIC)  
L6 590982 S (CULLET OR GLASS)  
L7 590982 S (CULLET OR GLASS)  
L8 587670 S (WASTE OR ORGANIC)  
L9 20742 S L6 AND L8  
L10 3 S L1 AND L9

L12 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2002 ACS

AN 1980:152353 CAPLUS

DN 92:152353

TI Treatment of **organic** waste liquor by **submerged**  
**combustion** process. II

AU Osada, Takeshi; Miyauchi, Yoshio

CS Toray Eng. Co. Ltd., Japan

SO Nenryo oyobi Nensho (1979), 46(9), 791-824

CODEN: NEONAA; ISSN: 0369-3783

DT Journal; General Review

LA Japanese

L12 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2002 ACS

AN 1980:27937 CAPLUS

DN 92:27937

TI Treatment of **organic** waste liquor by **submerged combustion** process. I

AU Osada, Takeshi; Miyauchi, Yoshio

CS Toray Eng. Co., Ltd., Japan

SO Nenryo oyobi Nensho (1979), 46(8), 701-20

CODEN: NEONAA; ISSN: 0369-3783

DT Journal; General Review

LA Japanese

L12 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2002 ACS

AN 1979:209590 CAPLUS

DN 90:209590

TI Treatment of **organic** waste liquor by the **submerged combustion** process

AU Miyauchi, Yoshio; Osada, Takeshi

CS Toray Eng. Co., Ltd., Osaka, Japan

SO PPM (1978), 9(5), 25-35

CODEN: PPMMDV

DT Journal

LA Japanese

L12 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2002 ACS

AN 1975:174055 CAPLUS

DN 82:174055

TI Recovery of Group VIII metals from solutions of rare metal-organophosphorus complexes in **organic** solvents

IN Onoda, Takeru; Tsunoda, Yoshitoshi; Nomura, Takao; Nonaka, Takehisa; Kurashiki, Okayama; Masuyama, Tetsuo

PA Mitsubishi Chemical Industries Co., Ltd., Japan

SO Ger. Offen., 15 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	DE 2438847	A1	19750227	DE 1974-2438847	19740813
	DE 2438847	B2	19770120		
	DE 2438847	C3	19770901		
	JP 50039690	A2	19750411	JP 1973-91054	19730814
	NL 7410884	A	19750218	NL 1974-10884	19740814
	NL 177700	B	19850603		
	NL 177700	C	19851101		
	FR 2240957	A1	19750314	FR 1974-28249	19740814
	FR 2240957	B1	19781124		
	US 3920449	A	19751118	US 1974-497414	19740814
	GB 1449408	A	19760915	GB 1974-35855	19740814
PRAI	JP 1973-91054		19730814		

L12 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2002 ACS

AN 1974:52114 CAPLUS

DN 80:52114

TI Waste treatment process based on the **submerged combustion** technology

AU Tsuruta, Hidemasa

CS Nittetsu Chem. Eng. Ltd., Japan

SO Sekiyu Gakkai Shi (1973), 16(8), 646-50

CODEN: SKGSAE

DT Journal  
LA Japanese

L12 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2002 ACS  
AN 1971:467222 CAPLUS  
DN 75:67222

TI Recovering hydrogen chloride from a spent organochlorine compound  
IN Ezaki, Shigeho  
PA Yawata Chemical Engineering Co., Ltd.  
SO U.S., 5 pp.  
CODEN: USXXAM

DT Patent  
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	US 3589864	A	19710629	US 1969-811905	19690401
PRAI	JP 1968-21404		19680403		

L14 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2002 ACS  
AN 1998:174931 CAPLUS  
DN 128:234216

TI Manufacture of supplementary cementitious materials from industrial  
**wastes**  
AU Mishulovich, Alex; Bhatti, Javed I.; Abbasi, Hamid A.; Rue, David; Olabin,  
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CS Construction Technology Laboratories, Skokie, IL, USA  
SO Proc. Int. Conf. Incineration Therm. Treat. Technol. (1996), 297-301  
Publisher: University of California, Irvine, Irvine, Calif.  
CODEN: 65TTAP

DT Conference  
LA English

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CaO-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>. Compns. were chosen that melt at temps. <1250.degree..  
These compns. were realized by mixing the ingredients in the calcd.  
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competitive in terms of strength but have an addnl. advantage of  
preventing or greatly reducing deleterious chem. reactions between the  
cement paste and concrete aggregates. This improves the durability of  
concrete. Unlike conventional portland cements, the supplementary  
cementing materials should be produced in the form of glasses to provide  
the necessary chem. reactivity of the product. Besides,  
**vitrification** prevents leaching of the trace elements present in  
the source materials. Submerged gas combustion was suggested and tested  
as the process of choice for commercialization of this technol. Pilot  
testing of the **submerged combustion** melter begins this  
year in a 250-kg/h test facility. Further studies are under way to  
finalize the prodn. process parameters and to investigate the products  
performance.

ST supplementary cementitious material industrial **waste**



IT **Wastes**  
(industrial; manuf. of supplementary cementitious materials from industrial **wastes**)

IT Cement (construction material)  
Recycling  
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L14 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2002 ACS  
AN 1994:282461 CAPLUS  
DN 120:282461  
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AU Uchiyama, Gunzo; Maeda, Mitsuru; Fujine, Sachio; Amakawa, Masayuki; Uchida, Katsuhide; Chida, Mitsuhisa  
CS Dep. Fuel Cycle Saf. Res., Japan At. Energy Res. Inst., Tokai, 319-11, Japan  
SO J. Nucl. Sci. Technol. (1994), 31(3), 228-39  
CODEN: JNSTAX; ISSN: 0022-3131  
DT Journal  
LA English  
CC 71-5 (Nuclear Technology)  
AB An exptl. study using a bench-scale equipment of 1 kg-stimulated spent solvents per h was conducted in order to evaluate the applicability of a **submerged combustion** technique for the treatment of spent solvents contaminated with TRU elements. This report describes the exptl. results on the combustion characteristics of the simulated spent solvents of tri-Bu phosphate and/or n-dodecane, and on the distribution behaviors of combustion products such as phosphoric acid, Ru, I, Zr and lanthanides as TRU simulants in the **submerged combustion** process. Also the exptl. results of TRU sepn. from phosphoric acid soln. by copptn. using bismuth phosphate are reported. The **submerged combustion** technique was applicable to the treatment of spent solvents including the distn. residues of the solvent. Based on the exptl. data, a new treatment process of spent solvent was proposed which consisted of **submerged combustion**, co-pptn. using bismuth phosphate, ceramic membrane filtration, cementation of TRU lean phosphate, and **vitrification** of TRU rich waste.

ST **submerged combustion** spent fuel reprocessing solvent; tributyl phosphate **submerged combustion**; dodecane **submerged combustion**; lanthanide transuranium simulant **submerged combustion**; copptn phosphate transuranium sepn radioactive waste; cementation phosphate sepn radioactive waste; filtration spent solvent fuel reprocessing; **vitrification** transuranium sepn fuel reprocessing waste

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(-emitters, recovery of, in treatment process for spent fuel reprocessing solvents)

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(formation of, in simulated spent fuel reprocessing solvent treatment by **submerged combustion**)

IT Evaporation  
Neutralization  
(in nuclear fuel reprocessing spent solvent treatment process)

IT Cementation  
(of transuranium-element depleted phosphate **wastes**, in treatment process for spent fuel reprocessing solvents)

IT Transuranium elements

RL: PROC (Process)  
(recovery of, in treatment process for spent fuel reprocessing solvents)

IT Radioactive **wastes**  
(spent solvent treatment process for fuel reprocessing, **submerged combustion** technique in)

IT Nuclear reactor fuel reprocessing  
(spent solvent treatment process, **submerged combustion** technique in)

IT Filters and Filtering materials  
(ceramic, in nuclear fuel reprocessing spent solvent treatment process)

IT Precipitation  
(co-, in nuclear fuel reprocessing spent solvent treatment process)

IT Glass, oxide  
RL: PROC (Process)  
(radioactive-**waste**, transuranium-element enriched, in treatment process for spent fuel reprocessing solvents)

IT Combustion  
(submerged, in nuclear fuel reprocessing spent solvent treatment process)

IT 12587-47-2P, Beta particle  
RL: PREP (Preparation)  
(-emitters, recovery of, in **submerged combustion** treatment process for spent fuel reprocessing solvents)

IT 34513-98-9  
RL: PROC (Process)  
(combustion of simulated spent fuel reprocessing solvent contg., radioactive **waste** disposal in relation to)

IT 74-88-4, Methyl iodide, reactions 75-03-6, Ethyl iodide 107-08-4, Propyl iodide  
RL: RCT (Reactant)  
(combustion of simulated spent fuel reprocessing solvent contg., radioactive **waste** disposal in relation to)

IT 10108-73-3, Cerium trinitrate 10138-01-9, Europium trinitrate  
10361-83-8, Samarium trinitrate 13826-66-9, Zirconyl dinitrate  
RL: PROC (Process)  
(combustion of transuranic simulant, in spent fuel reprocessing solvent treatment process)

IT 112-40-3, Dodecane 126-73-8, Tributyl phosphate, reactions  
RL: RCT (Reactant)  
(combustion of, in simulated spent fuel reprocessing solvent treatment process, radioactive **waste** issues in relation to)

IT 7782-44-7  
RL: PROC (Process)  
(combustion, submerged, in nuclear fuel reprocessing spent solvent treatment process)

IT 13847-18-2, Barium phosphate  
RL: PROC (Process)  
(copptn. with, of transuranics in simulated spent fuel reprocessing solvent treatment process)

IT 124-38-9P, Carbon dioxide, preparation 630-08-0P, Carbon monoxide, preparation 7782-44-7P, Oxygen, preparation  
RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in simulated spent fuel reprocessing solvent treatment by **submerged combustion**)

IT 7553-56-2P, Iodine, preparation 15454-31-6P, Iodate (IO3-)  
20461-54-5P, Iodide, preparation  
RL: PREP (Preparation)  
(recovery of, from combustion of simulated spent fuel reprocessing solvent contg. alkyl iodides)

IT 7440-18-8P, Ruthenium, preparation  
RL: PREP (Preparation)  
(recovery of, from combustion of simulated spent fuel reprocessing

solvent contg. ruthenium nitrosyl nitrate)  
IT 7440-18-8DP, Ruthenium, phosphate complexes  
RL: PREP (Preparation)  
(recovery of, from combustion of simulated spent fuel reprocessing  
solvent contg. ruthenium nitrosyl nitrate, radioactive **waste**  
disposal in relation to)  
IT 13454-71-2P, Cerium monophosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. cerium  
nitrate, fuel reprocessing **waste** issues in relation to)  
IT 13537-10-5P, Europium(III) phosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. europium  
nitrate, fuel reprocessing **waste** issues in relation to)  
IT 13465-57-1P, Samarium(III) phosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. samarium  
nitrate, fuel reprocessing **waste** issues in relation to)  
IT 13565-97-4P, Zirconium pyrophosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. zirconyl  
nitrate, fuel reprocessing **waste** issues in relation to)  
IT 7440-07-5P, Plutonium, preparation  
RL: PREP (Preparation)  
(recovery of, from phosphoric acid solns. by copptn. with barium  
phosphate, spent fuel reprocessing solvent **waste** in relation  
to)  
IT 7664-38-2P, Phosphoric acid, preparation  
RL: PREP (Preparation)  
(recovery of, from tri-Bu phosphate combustion in simulated spent fuel  
reprocessing solvent treatment process)

(FILE 'HOME' ENTERED AT 16:31:31 ON 26 JAN 2002)

FILE 'CAPLUS' ENTERED AT 16:31:46 ON 26 JAN 2002

L1 357 SEA PLU=ON SUBMERG? COMBUST?  
L\*\*\* DEL 0 S CULLET NEAR3 ORGANIC  
L2 1 SEA PLU=ON CULLET (3A) ORGANIC

FILE 'STNGUIDE' ENTERED AT 16:33:58 ON 26 JAN 2002  
SET LINE 250  
SET DETAIL OFF

FILE 'CAPLUS' ENTERED AT 16:34:07 ON 26 JAN 2002

SET LINE LOGIN  
SET DETAIL LOGIN  
SET NOTICE 1000 SEARCH  
L3 1 SEA PLU=ON (CULLET (5A) ORGANIC)  
L4 1 SEA PLU=ON (CULLET (S) ORGANIC)  
L5 5 SEA PLU=ON (CULLET AND ORGANIC)  
L6 590982 SEA PLU=ON (CULLET OR GLASS)  
L7 590982 SEA PLU=ON (CULLET OR GLASS)  
L8 587670 SEA PLU=ON (WASTE OR ORGANIC)  
SET NOTICE LOGIN SEARCH  
L9 20742 SEA PLU=ON L6 AND L8  
L10 3 SEA PLU=ON L1 AND L9  
D 1-3 ALL  
D COST FULL  
L11 6 SEA PLU=ON L1 AND ORGANIC  
L12 6 SEA PLU=ON L11 NOT L10  
D 1-6  
L13 2233 SEA PLU=ON VITRIFICATION AND WASTE

FILE HOME

FILE CAPLUS

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FILE COVERS 1907 - 26 Jan 2002 VOL 136 ISS 5  
FILE LAST UPDATED: 25 Jan 2002 (20020125/ED)

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FILE CONTAINS CURRENT INFORMATION.  
LAST RELOADED: Jan 25, 2002 (20020125/UP).

FILE & COST CENTER	QUANTITY @	RATE	ESTIMATED COST U.S. DOLLARS
HOME FILE			
COST=			
CONNECT HOURS	0.01 @	15.00	0.15
INTERNET HOURS	0.01 @	6.00	0.06
CAPLUS FILE			
COST=			
CONNECT HOURS	0.04 @	32.00	1.28
INTERNET HOURS	0.04 @	6.00	0.24
SEARCH TERMS IN FIELD BI	7 @	1.55	10.85
CAPLUS FEE (5%)	12.13 @	0.05	0.61
STNGUIDE FILE			
COST=			
SFE CONNECT HOURS	0.01 @	0.00	0.00
INTERNET HOURS	0.01 @	6.00	0.06
CAPLUS FILE			
COST=			
CONNECT HOURS	0.09 @	32.00	2.88
INTERNET HOURS	0.09 @	6.00	0.54
DISPLAYS IN FORMAT ABS	5 @	1.27	6.35
DISPLAYS IN FORMAT BIB	11 @	0.91	10.01

DISPLAYS IN FORMAT IND	5	@	0.27	1.35
SEARCH TERMS IN FIELD BI	15	@	1.55	23.25
CAPLUS FEE (5%)	43.84	@	0.05	2.19

SUMMARY BY FILE	AND	COST CENTER	HOURS	ESTIMATED COST U.S. DOLLARS
HOME FILE		(NONE)	0.01	0.21
CAPLUS FILE		(NONE)	0.13	59.55
STNGUIDE FILE		(NONE)	0.01	0.06

COSTS INCLUDE TELECOMMUNICATION FEES	0.15	0.90
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SUMMARY BY	COST CENTER	HOURS	ESTIMATED COST U.S. DOLLARS
	(NONE)	0.15	59.82
YOUR TOTAL SESSION COSTS ARE		0.15	59.82

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-3.10	-3.10

IN FILE 'CAPLUS' AT 16:49:41 ON 26 JAN 2002

L14 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2002 ACS  
 AN 1994:282461 CAPLUS  
 DN 120:282461  
 TI Development of spent solvent treatment process by a **submerged combustion** technique  
 AU Uchiyama, Gunzo; Maeda, Mitsuru; Fujine, Sachio; Amakawa, Masayuki; Uchida, Katsuhide; Chida, Mitsuhsa  
 CS Dep. Fuel Cycle Saf. Res., Japan At. Energy Res. Inst., Tokai, 319-11, Japan  
 SO J. Nucl. Sci. Technol. (1994), 31(3), 228-39  
 CODEN: JNSTAX; ISSN: 0022-3131  
 DT Journal  
 LA English  
 CC 71-5 (Nuclear Technology)  
 AB An exptl. study using a bench-scale equipment of 1 kg-stimulated spent solvents per h was conducted in order to evaluate the applicability of a **submerged combustion** technique for the treatment of spent solvents contaminated with TRU elements. This report describes the exptl. results on the combustion characteristics of the simulated spent solvents of tri-Bu phosphate and/or n-dodecane, and on the distribution behaviors of combustion products such as phosphoric acid, Ru, I, Zr and lanthanides as TRU simulants in the **submerged combustion** process. Also the exptl. results of TRU sepn. from phosphoric acid soln. by copptn. using bismuth phosphate are reported. The **submerged combustion** technique was applicable to the treatment of spent solvents including the distn. residues of the solvent. Based on the exptl. data, a new treatment process of spent solvent was proposed which consisted of **submerged combustion**, co-pptn. using bismuth phosphate, ceramic membrane filtration, cementation of TRU lean phosphate, and **vittrification** of TRU rich waste.  
 ST **submerged combustion** spent fuel reprocessing solvent; tributyl phosphate **submerged combustion**; dodecane **submerged combustion**; lanthanide transuranium simulant **submerged combustion**; copptn phosphate transuranium sepn radioactive waste; cementation phosphate sepn radioactive waste; filtration spent solvent fuel reprocessing; **vittrification** transuranium sepn fuel reprocessing waste  
 IT Gamma ray  
 (-emitters, recovery of, in treatment process for spent fuel reprocessing solvents)  
 IT Rare earth metals, reactions  
 RL: RCT (Reactant)  
 (combustion of transuranic simulant, in spent fuel reprocessing solvent treatment process)  
 IT Hydrocarbons, preparation  
 RL: FORM (Formation, nonpreparative)  
 (formation of, in simulated spent fuel reprocessing solvent treatment by **submerged combustion**)  
 IT Evaporation  
 Neutralization  
 (in nuclear fuel reprocessing spent solvent treatment process)  
 IT Cementation  
 (of transuranium-element depleted phosphate wastes, in treatment process for spent fuel reprocessing solvents)  
 IT Transuranium elements  
 RL: PROC (Process)  
 (recovery of, in treatment process for spent fuel reprocessing solvents)  
 IT Radioactive wastes  
 (spent solvent treatment process for fuel reprocessing, **submerged combustion** technique in)  
 IT Nuclear reactor fuel reprocessing

- (spent solvent treatment process, **submerged combustion** technique in)
- IT Filters and Filtering materials  
(**ceramic**, in nuclear fuel reprocessing spent solvent treatment process)
- IT Precipitation  
(**co-**, in nuclear fuel reprocessing spent solvent treatment process)
- IT Glass, oxide  
RL: PROC (Process)  
(radioactive-**waste**, transuranium-element enriched, in treatment process for spent fuel reprocessing solvents)
- IT Combustion  
(submerged, in nuclear fuel reprocessing spent solvent treatment process)
- IT 12587-47-2P, Beta particle  
RL: PREP (Preparation)  
(-emitters, recovery of, in **submerged combustion** treatment process for spent fuel reprocessing solvents)
- IT 34513-98-9  
RL: PROC (Process)  
(combustion of simulated spent fuel reprocessing solvent contg., radioactive **waste** disposal in relation to)
- IT 74-88-4, Methyl iodide, reactions 75-03-6, Ethyl iodide 107-08-4, Propyl iodide  
RL: RCT (Reactant)  
(combustion of simulated spent fuel reprocessing solvent contg., radioactive **waste** disposal in relation to)
- IT 10108-73-3, Cerium trinitrate 10138-01-9, Europium trinitrate 10361-83-8, Samarium trinitrate 13826-66-9, Zirconyl dinitrate  
RL: PROC (Process)  
(combustion of transuranic simulant, in spent fuel reprocessing solvent treatment process)
- IT 112-40-3, Dodecane 126-73-8, Tributyl phosphate, reactions  
RL: RCT (Reactant)  
(combustion of, in simulated spent fuel reprocessing solvent treatment process, radioactive **waste** issues in relation to)
- IT 7782-44-7  
RL: PROC (Process)  
(combustion, submerged, in nuclear fuel reprocessing spent solvent treatment process)
- IT 13847-18-2, Barium phosphate  
RL: PROC (Process)  
(copptn. with, of transuranics in simulated spent fuel reprocessing solvent treatment process)
- IT 124-38-9P, Carbon dioxide, preparation 630-08-0P, Carbon monoxide, preparation 7782-44-7P, Oxygen, preparation  
RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in simulated spent fuel reprocessing solvent treatment by **submerged combustion**)
- IT 7553-56-2P, Iodine, preparation 15454-31-6P, Iodate (IO3-)  
20461-54-5P, Iodide, preparation  
RL: PREP (Preparation)  
(recovery of, from combustion of simulated spent fuel reprocessing solvent contg. alkyl iodides)
- IT 7440-18-8P, Ruthenium, preparation  
RL: PREP (Preparation)  
(recovery of, from combustion of simulated spent fuel reprocessing solvent contg. ruthenium nitrosyl nitrate)
- IT 7440-18-8DP, Ruthenium, phosphate complexes  
RL: PREP (Preparation)  
(recovery of, from combustion of simulated spent fuel reprocessing solvent contg. ruthenium nitrosyl nitrate, radioactive **waste** disposal in relation to)
- IT 13454-71-2P, Cerium monophosphate

RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. cerium  
nitrate, fuel reprocessing **waste** issues in relation to)

IT 13537-10-5P, Europium(III) phosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. europium  
nitrate, fuel reprocessing **waste** issues in relation to)

IT 13465-57-1P, Samarium(III) phosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. samarium  
nitrate, fuel reprocessing **waste** issues in relation to)

IT 13565-97-4P, Zirconium pyrophosphate  
RL: PREP (Preparation)  
(recovery of, from combustion of spent TBP solvent contg. zirconyl  
nitrate, fuel reprocessing **waste** issues in relation to)

IT 7440-07-5P, Plutonium, preparation  
RL: PREP (Preparation)  
(recovery of, from phosphoric acid solns. by copptn. with barium  
phosphate, spent fuel reprocessing solvent **waste** in relation  
to)

IT 7664-38-2P, Phosphoric acid, preparation  
RL: PREP (Preparation)  
(recovery of, from tri-Bu phosphate combustion in simulated spent fuel  
reprocessing solvent treatment process)



L14 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2002 ACS

AN 1998:174931 CAPLUS

DN 128:234216

TI Manufacture of supplementary cementitious materials from industrial  
**wastes**

AU Mishulovich, Alex; Bhatti, Javed I.; Abbasi, Hamid A.; Rue, David; Olabin,  
Vladimir M.; Pioro, Leonard S.

CS Construction Technology Laboratories, Skokie, IL, USA

SO Proc. Int. Conf. Incineration Therm. Treat. Technol. (1996), 297-301

Publisher: University of California, Irvine, Irvine, Calif.

CODEN: 65TTAP

DT Conference

LA English

CC 58-1 (Cement, Concrete, and Related Building Materials)

Section cross-reference(s): 60

AB Supplementary cementitious materials (SCM) were manufd. by melting and  
**vittrification** of specially designed blends of **wastes**  
with the addn. of inexpensive natural materials (limestone, sand, shale,  
etc.). This approach opens an outlet for the rational use of  
**wastes** and reduces carbon dioxide emission usually assocd. with  
prodn. of conventional portland cement. The paper summarizes the results  
of the bench top phase of formulation and testing of SCMs prepd. from  
Illinois coal ash with the addn. of inexpensive natural or **waste**  
materials, such as limestone or cement kiln dust. Selection of the  
prospective compns. was based on the anal. of phase equil. in the system  
CaO-SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>. Compns. were chosen that melt at temps. <1250.degree..  
These compns. were realized by mixing the ingredients in the calcd.  
proportions. Performance of the produced materials was tested in blended  
cements and concretes. Blended cements incorporating SCMs are not only  
competitive in terms of strength but have an addnl. advantage of  
preventing or greatly reducing deleterious chem. reactions between the  
cement paste and concrete aggregates. This improves the durability of  
concrete. Unlike conventional portland cements, the supplementary  
cementing materials should be produced in the form of glasses to provide  
the necessary chem. reactivity of the product. Besides,  
**vittrification** prevents leaching of the trace elements present in  
the source materials. Submerged gas combustion was suggested and tested  
as the process of choice for commercialization of this technol. Pilot  
testing of the **submerged combustion** melter begins this  
year in a 250-kg/h test facility. Further studies are under way to  
finalize the prodn. process parameters and to investigate the products  
performance.

ST supplementary cementitious material industrial **waste**

IT **Wastes**

(industrial; manuf. of supplementary cementitious materials from  
industrial **wastes**)

IT Cement (construction material)

Recycling

(manuf. of supplementary cementitious materials from industrial  
**wastes**)